The Price of Launching a New Product: Empirical Evidence on the Use of Slotting Allowances

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ABSTRACT

The retail practice of charging a fee to stock new products is a relatively new but growing phenomenon. Termed a "slotting allowance", this practice has attracted some scrutiny because of uncertainty about its purposes and consequences. We draw from the extant literature to identify factors that potentially influence the tendency to charge slotting allowances. We empirically observe that the phenomenon of charging slotting allowances is greater among large retailers, and this tendency increases with retailers' informational advantage over the manufacturer about the likely success of the new product. This result is in apparent contradiction to the theory that manufacturers who have private information about the likely success of their new product attempt to credibly convey this information through their willingness to pay slotting fees, as well as other pro- and anti-competitive explanations. We discuss the theoretical and managerial implications of our findings.

INTRODUCTION

- *On November 8, 1995, the Federal Trade Commission held hearings to determine if antitrust and consumer protection regulations needed updating in light of the recent emergence of a phenomenon known as "slotting allowances", a lump-sum advance payment that manufacturers pay grocery retailers to stock new products. One expert economist testified that slotting allowances (estimated at between $6-$18 billion a year, which could represent upto a third of new product marketing budgets) can both promote and stifle competition. They promote competition by forcing firms to only launch products that are likely to be successful, and stifle competition by limiting the ability of small manufacturers to enter. A legal expert offered the opinion that slotting fees may be a thinly disguised form of price discrimination, because the fees demanded may vary by the size and brand equity of the manufacturer. This expert also suggested that the practice was spreading to various other consumer-goods industries.*

- *On November 10, 1995, ABC News aired a special report on its 20/20 program. Using a hidden camera, the show documented conversations between an entrepreneur and buyers for two food retailers, during which the buyers indicated that "slotting fees" were more important than sales presentations in gaining shelf space. One buyer indicated that the typical slotting fee was $5,000 per item, while the other buyer indicated that the price was closer to $8,000-$10,000.*

- *In September 1999, a United States Senate committee on Small Business held hearings on slotting fees. Witnesses included two small-business owners who were shrouded in black hoods because they feared retaliation from powerful retailers. In voices that were electronically altered, they spoke of the chilling effect of slotting allowances on their ability to compete.*

Manufacturers of new products often pay slotting allowances to retailers. These fees are lump-sum up-front payments that retailers allegedly demand to stock the new product. The magnitude of the fee charged can be quite high; consequently the topic generates strong reactions from those who pay them, from those who charge them, and from those who regulate the players. Manufacturers reputedly abhor them because they impose additional costs on them, retailers and wholesalers claim that they are necessary in light of the "excessive" rate of new product introductions by manufacturers, and

regulators often vehemently argue that the fee is either (a) “anti-competitive” because it discriminates against small firms, (b) inflationary, since it raises manufacturer’s costs, or (c) efficient, since it rations scarce shelf space and screens out potentially weak new products.

As the opening vignettes suggest, slotting allowances are a substantial, growing, yet controversial phenomenon whose purposes and consequences are not entirely clear. Specifically, while it is widely speculated that slotting allowances are, among other things, a consequence of retailer power (suggesting that these allowances are likely to become common in other industries populated by powerful retailers), or an efficient response to the proliferation of new products that compete for scarce retail shelf space (again, suggesting that such allowances will become popular in industries where new product introductions are frequent and shelf space is scarce), the limited available evidence is somewhat ambiguous about the purposes that slotting allowances serve. In particular, the only extant empirical evidence that is not anecdotal relies on secondary data (Sullivan 1997) and speaks only indirectly to some of the prevailing theories in the Marketing literature (Chu 1992; Lariviere and Padmanabhan 1997).

Given the apparent importance of the topic and the paucity of direct evidence on the phenomenon, our goal is to empirically examine the issue. We draw from the existing literature to identify a series of factors that have been implicated in the slotting allowance decision. We then derive predictions regarding variations in the tendency to charge slotting fees based on characteristics of the exchange as suggested in extant models. With that end in view, we next provide a review of the literature and describe the various extant theoretical perspectives. We then describe our empirical effort that comprised a

survey of retailers in the grocery industry (where the phenomenon has its roots). Finally, we conclude with a discussion of the implications of our research.

EXTANT PERSPECTIVES AND PREDICTIONS

There are three broad categories of explanations that account for the emergence of slotting allowances that have been discussed in the literature. They are: (i) solving information asymmetry between manufacturers and retailers, (ii) equating the demand for and supply of new products, and (iii) the exercise of retailer power (Sullivan 1992, 1997; Lariviere and Padmanabhan 1997; Shaeffer 1991). A fourth explanation is the converse of the third and considers the impact of manufacturer power on lowering slotting allowances.

Solving Information Asymmetry

Information asymmetry occurs when one party to a transaction has pertinent information that the other party lacks. Two types of information problems, *adverse selection* or *hidden information* and *moral hazard* or *hidden action*, have been studied in the literature (Bergen, Dutta, and Walker 1992; Rao and Monroe 1996; Mishra, Heide and Cort 1998; Kirmani and Rao 2000). Adverse selection problems occur when one party is uncertain about the claims that the other party makes regarding its *capability* to fulfill contractual obligations. For instance, a buyer may be unsure if a seller has the requisite skills to manufacture and deliver a high quality product, or, in our context, a retailer may be unsure about the true (unobservable) demand for a new product being offered by a manufacturer. Moral hazard problems occur when one party is uncertain about the *intentions* of the other party. For instance, a buyer may be afraid that a seller will reduce quality after the contract has been signed, or, in our context, a retailer may be

afraid that a manufacturer will not fulfill commitments to support a new product, after it has been launched.

When manufacturers approach retailers with new products that they wish to have stocked on retailers' shelves, they generally provide information (marketing research data, past successes, advertising and promotion plans, and the like) that speaks to the likelihood of the success of the new product. This information is designed to address retailer concerns that the new product will fail. However, since manufacturers compete with each other for scarce shelf space, it is in their self-interest to project optimistic sales revenues and profits, so that retailers do stock their new product. As a result, all manufacturers tend to claim their products will be highly successful. (Chu (1992) provides valuable institutional detail regarding the incentives for manufacturers to "misrepresent" their private information about unobservable demand). Consequently, the retailer is faced with an adverse selection problem, much like the adverse selection problem faced by consumers contemplating the purchase of a product of unobservable quality (Akerlof 1970). Some new products will likely be successful, while others will not, and simply examining pre-launch projections, marketing research data, and the like, frequently does not provide an accurate indication of future demand. The retailer's problem, therefore, is to determine the *type* of the new product (high or low demand).

With the explosion in new product introductions, and a commensurate increase in the number of new product failures, the economic consequences of a poor choice are non-trivial, and retailers are therefore forced to exercise considerable circumspection in the choice of which of several new products to stock (Sullivan 1997). One solution to this information asymmetry problem is to pay a fee that would not have been paid under full

information (i.e., if there had been no uncertainty about demand for the new product). By doing so, the manufacturer can credibly communicate that she is a manufacturer selling a new product that will have *high* demand, since manufacturers of *low* demand products would not be able to recover this expenditure from future sales and therefore would not rationally incur such an expenditure (cf. Spence 1973; Bhattacharya 1980; Wernerfelt 1988; Kirmani and Rao 2000). In other words, a manufacturer who knew she had a low-demand product, or was unsure about the demand for her new product, would be unwise to pay a slotting fee. Conversely, any manufacturer willing to pay a slotting fee must have accurate private information about the potential success of the new product. In essence, the slotting fee signal can solve the *adverse selection* problem and should be observed when retailers are uncertain about a new product's success, but manufacturers are certain that the product will succeed (Chu 1992)[1].

Our first refutable prediction emanates from this signaling argument (Chu 1992; Lariviere and Padmnabhan 1997). The core claim is that manufacturers who wish to credibly communicate that their new product is of the *high demand type* need to signal this belief by putting their economic interests at risk. Firms who have new products that are likely to face *low demand* will mimic the high demand firms at their economic peril. Specifically, a slotting allowance can serve as a credible signal of unobservable future demand for a firm's new product[2]. Therefore:

> H1: When manufacturers are better informed than retailers about the likely success of their new product, their tendency to pay slotting allowances should increase, to credibly communicate this private information.

Equating Demand and Supply

A second class of explanation argues that slotting allowances are a response to increases in the rate of new product introduction relative to available shelf space. In fact, manufacturers argue that slotting allowances are a "…polite form of extortion" (*Advertising Age* 1987). Since manufacturers can not sell a new product without access to shelf space, they are left with no choice but to comply with the demands placed on them by the retailer. The general claim is that, with increased consolidation among retailers, they are able to exert power over manufacturers and thus negotiate terms of trade that are considerably advantageous. A logical implication of this argument is that larger retailers should be able to charge higher slotting fees, and small retailers should not be able to charge slotting fees at all.

Sullivan develops a model that considers the role of slotting allowances as a mechanism to "…equate the retail demand for new products with … supply" (Sullivan 1997, p. 463). In other words, as the supply of new products increases, the price associated with limited shelf space for new products should increase as well. According to Sullivan's model, the retailer's optimal quantity and number of products carried is a function of the retailer's operating costs, and these costs increase in the number and quantity of products stocked. In particular, new product introductions impose significant costs on retailers, and they require compensation for costs such as the one-time fees associated with entering SKU information into the store's computer system, warehouse placements, and shelving costs, as well as the opportunity cost of the shelf space (Freeman 1986; Hall 1988). On this view, therefore, slotting allowances are a transfer

payment provided by manufacturers to retailers to compensate them for their efforts in new product introductions.

While Sullivan's data are supportive of her pro-competitive argument (that slotting allowances are explained principally by an escalation in new product activity), the level of aggregation in her data makes it difficult to tease out variations in the charging of slotting allowances. Specifically, it is unclear if slotting allowances vary by the size and past successes of manufacturers, their level of information relative to the retailer, the size and costs of the retailer, and other micro level variations that typify inter-organizational governance mechanisms. Therefore, while she is able to dismiss several rival explanations at the macro level, it is feasible that a more micro-level analysis will reveal additional insights. For instance, one logical implication of her line of reasoning is that slotting allowances should be higher when the retailer's costs are high. In particular, costs such as placing new products on shelves, the time required to shelve new products, and the opportunity cost of shelf space could vary by retailer, and these costs should be systematically related to the slotting allowances charged. Since we examine retailer level data, we will be able to speak to the direct relationship between costs and slotting allowances.

Our second refutable prediction emanates from this demand-supply argument (Sullivan 1997). According to this perspective, retailers who have high costs should seek higher levels of slotting allowances to compensate for their costs. Specifically,

> H2: When retailer's costs are high their tendency to charge slotting allowances should increase, to compensate for their costs.

The exercise of retailer power

The third class of explanation suggests that slotting allowances are a facilitating device. Shaeffer (1991) develops this anti-competitive argument and suggests that the presence of slotting allowances in combination with a relatively high wholesale price results in lower downstream price competition among retailers, and thus increases their profits. This practice has no effect on manufacturer profits in his model and manufacturers are therefore indifferent between paying and not paying slotting fees. However, when faced with powerful retailers who prefer the payment of slotting fees and the accompanying high wholesale prices that then limit downstream price competition, manufacturers are willing to pay slotting fees[3]. Essentially, according to this argument, slotting allowances should be accompanied by higher wholesale prices (which in turn should lead to higher retail prices, and lower price competition among retailers).

Our third refutable prediction emanates from this retailer power argument. If retailers are able to exercise power over manufacturers, and a high wholesale price accompanied by a slotting allowances results in lower retail price competition (Shaeffer 1991):

> H3: When the tendency to charge slotting allowances is high, wholesale prices should also be high.

The role of Manufacturer Power

A fourth explanation is a variant of the third discussed above. Underlying many of the arguments in the literature lies the premise that new product launches are hazardous because the success of the new product (relative to existing products) is uncertain. Indeed, the literature in new product failure rates confirms that a large fraction of new products do not succeed (Urban and Hauser 1993), and some estimates place failure rates

in the grocery industry to be as high as 80% (Wolfsenberger 1991). Therefore, the circumspection on the part of retailers is justifiable and it therefore appears reasonable to argue, as retailers do, that they need to protect themselves against the risk of failure by charging manufacturers an up-front fee, such as a slotting allowance.

However, retailers frequently attempt to reduce this uncertainty by conducting their own market research, and are generally assumed to have more information about local demand conditions than manufacturers. Therefore, if a retailer's market research reveals that a new product is likely to be successful, then he would like to carry it. To the extent that the manufacturer has also conducted market research that establishes the likely success of the new product, the retailer's ability to charge the manufacturer a slotting allowance may be reduced, since both parties are now well-informed about the likely success of the new product. Conversely, if the manufacturer is less competent than the retailer and has less hard information about the likely success of the new product, the retailer can exploit his informational advantage and extract a slotting allowance from the uninformed manufacturer. The issue of slotting allowance payments can therefore be framed as a tussle about information. The default expectation among all parties is that a slotting allowance will be charged. However, this fee may be waived or reduced when the retailer's market research reveals that the new product will likely be successful, and the retailer realizes that the manufacturer is well aware of this likely success. This perspective is in sharp contrast to the signaling argument, according to which manufacturers who are *better* informed than retailers will pay a slotting allowance to signal their unobservable demand. It is, however, consistent with an argument offered by small manufacturers, who have noted that retailers frequently excuse large manufacturers

from paying slotting fees, because these large manufacturers are able to exercise power over the retailer (Freeman and Meyers, 1987). In other words, one can envision circumstances under which the manufacturer's power allows her to not pay a distasteful slotting allowance; while retailer power may result in their ability to charge slotting allowances, there may be circumstances in which manufacturer power attenuates this effect[4].

This line of reasoning suggests that when retailers enjoy an informational advantage over manufacturers, they will exploit it and extract a slotting allowance. Conversely, when retailers do not enjoy an informational advantage over the manufacturer, they will not be able to extract a slotting allowance from the manufacturer. Therefore:

> H4: When retailers are faced with a product they believe is likely to be successful, and the manufacturer is also aware of the new product's likely success, the tendency to pay slotting allowances should decrease, relative to when the manufacturer is unaware of the new product's likely success.

In summary, the literature offers several explanations and predictions for the role that slotting allowances play in manufacturer-retailer transactions when new products are launched[5]. The tendency to pay a slotting allowance may signal unobservable demand (H1). The tendency to charge a slotting allowance may serve a pricing role by equating available shelf space with the supply of new products (H2), and/or be a manifestation of retailer power, in which case it should be accompanied by higher wholesale prices (H3). Finally, the tendency to charge a slotting allowance should increase when the *retailer's* private information about demand is better than the manufacturer's (H4).

Notice that H1 and H4 make opposite predictions. Under H1, the retailer's power is paramount, whereas under H4, the retailer's power can be countered when both the manufacturer and retailer are aware of the likely success of the new product, and the

retailer would therefore like to carry the new product. Additionally, H2, and H3 also invoke the retailer's power in charging slotting fees, either to cover their costs, or to enhance profits by reducing downstream price competition. Further, notice that an alternative interpretation of H3 is consistent with the signaling argument. Here, slotting fees may be offered as a signal but the cost of the fee is recovered through higher wholesale prices.

To test these predictions, we conducted a survey of buyers in the retail food industry, which we describe next.

METHODOLOGY

We engaged in a three-phase data collection exercise. In the first phase, qualitative interviews were conducted with buyers and store managers of a large chain in the Upper Mid-Western United States. In the second phase, a questionnaire was pre-tested on a sample of fifty-nine respondents, all of whom were involved with the purchasing function at grocery stores or chains. In the third phase, a revised instrument was fielded on the same population that responded to the second phase, while ensuring that no respondent from the second phase was contacted in the third phase.

Phase I

The purpose of this phase of the data collection exercise was several-fold. Given the sensitive nature of the issue (recall that retailers accepting slotting fees may be in violation of the Robinson Patman Act) our first task was to determine whether retailers would be willing to respond to questions even if their anonymity was assured. Second, in light of the several explanations for the existence and size of slotting allowances, we needed to develop a sense for whether any explanation struck our respondents as

singularly incorrect. Third, we needed input on scale items that would tap the constructs that we wished to investigate.

Based on several one-on-one and group meetings with fifteen buyers and managers of a large grocery store chain in the upper mid-west, we concluded that grocery store managers and buyers would be able and willing to provide the information we sought, as long as we were able to assure their anonymity, and as long as the questionnaire was relatively short. Further, while store managers were perfectly willing to respond to rating scales, they were either unable or unwilling to provide specific dollar figures. This issue had obvious implications for our ability to collect information on the magnitude of fees charged, prices, margins and the like. Second, while the cost compensation argument was the argument everybody subscribed to, nobody dismissed any of the other arguments[6]. Third, after we described the constructs of interest, their conceptual underpinnings and the relationships of interest, respondents suggested several scale items and offered input on items that we had already developed. This procedure allowed us to develop a questionnaire that we pre-tested on a larger sample in Phase II.

Phase II

Our purpose in Phase II was to develop multi-item scales for our key constructs, and assess the response of our sample to the length of the questionnaire and the manner in which we solicited responses. Therefore, we developed multi-item scales for the following constructs: receipt of slotting allowances (SAAMT) which was the dependent variable, probability of failure of the new product (PFAIL), informational advantage of manufacturer (MANINFOR)[7], retailer's costs (COST), and (based on input received in Phase I) a single-item measure for wholesale price (WP). In addition, we developed a

host of measures for several control variables that included the brand equity of the manufacturer, retail level competition, competition in the manufacturer's market, and the like.

The questionnaire comprised two major sections. Respondents who indicated that they had received a slotting allowance from their last vendor were then asked to provide responses to a series of 5-point scale items anchored at "Strongly Agree" and "Strongly Disagree", that gathered information on the nature of that particular vendor and that particular interaction. Respondents who had not received a slotting allowance from their last vendor were directed to a section of the questionnaire that asked for their opinions on several items including the role of slotting allowances, technology, new product introductions and the like, in their industry. Finally, all respondents were asked to provide demographic information and their opinion on what they thought the research was about, and any feedback they could provide the researchers.

A quota sampling technique was used to contact respondents by telephone. This procedure attempted to ensure that respondents from every state were contacted in proportion to the number of grocery retailers in that state. The Directory of Supermarket, Grocery and Convenience Store Chains (1997) was used to establish initial contact and solicit participation. Those agreeing to participate were then sent a mail questionnaire with a cover letter on University letterhead, a reply paid envelope, and a postcard inviting them to request a "PAR REPORT" that would describe how their response compared with others in the sample. Reminder postcards were sent out two weeks later.

Of the six hundred people contacted, two hundred sixty agreed to respond. All of these two hundred sixty people were sent the questionnaire, and fifty-eight questionnaires

were returned yielding a response rate of 22.31%. The data from these responses were analyzed for the psychometric properties of scale items as well as any insights that the qualitative responses might provide[8]. Based on these analyses, we made several changes to our instrument, which, while they increased the length of the survey, were deemed essential for measurement rigor. The details of the fielding of this second survey are provided next.

Phase III

The procedures employed in this phase were identical to those employed in Phase II. Twelve hundred potential respondents were contacted using a quota sampling procedure to attempt representation across geographic areas. Seven hundred forty eight respondents agreed to participate in the study and were sent the eight-page questionnaire with a cover letter on University letterhead, a reply-paid envelope, and a "PAR REPORT" request post card. Roughly two weeks later, a reminder postcard was mailed out as well. A total of one hundred sixteen responses were received prior to a pre-specified cut-off date, yielding a response rate of 15.51%.

There were several modifications to the questionnaire that was used in Phase II. First, respondents who indicated that they had not received a slotting fee from their last vendor were asked whether they had ever received a slotting fee. All respondents who had ever received a slotting fee proceeded to a section that comprised the indicators for the independent and dependent variables. These items included questions about the vendor, the product, the retailer, the competitive environment, the nature and degree of information asymmetry, cost of stocking shelves, opportunity cost of space, slotting allowances received, and several control variables, many of which had been revised or

included based on the analysis of Phase II results. (The key constructs and their reliabilities are provided in the Appendix. A sample of the complete questionnaire may be obtained from the first author). Finally, respondents who had never received a slotting fee before were directed to a section that asked for their opinions on several issues pertinent to the retail food industry. In light of the fact that they had not received a slotting allowance, it was obviously not possible to collect information about the drivers of the magnitude of the slotting allowance charged. Finally, demographic information regarding the respondent, as well as descriptive information regarding the retailer was collected from all respondents. After a pre-specified cut-off date, those requesting "PAR REPORTS" were provided mean and standard deviation data on all scale items with a cover letter in which these data were interpreted in lay terms, and the key results were described.

ANALYSIS AND RESULTS

We divide our discussion of the results into three sections. In the first section we provide descriptive information that speaks to the prevalence of the phenomenon. In the second section, we report on the psychometric properties of our scale items, and in the third section we provide the results of the analyses for the tests of the various hypotheses.

Descriptive Information

Of the one hundred sixteen respondents, eighty-two respondents (71% of our sample) indicated that they had indeed received slotting allowances. The remaining thirty-four who had never received a slotting allowance provided responses to items that are not germane to this research. However, a comparison between the two groups of respondents on demographic characteristics is pertinent and is provided in Table 1.

Insert Table 1 about here

Notice that, the only statistically significant difference between respondents who had received a slotting allowance and those who had not is that the latter respondents had purchased a smaller dollar volume than the former group. This suggests that purchasing volume (consistent with the retailer power argument) has an impact on the ability of the retailer to extract slotting allowances from the manufacturer. On all other dimensions, including individual difference factors such as age of the respondent, tenure within the organization, level of management, and the like, the differences between the groups are statistically insignificant.

While the comparative analysis of numerical information (years, dollar volume) examined log-transformed data, the raw numbers are revealing. Those who did not receive slotting allowances were involved with purchases that averaged $7.1 million the previous year, while the group that received slotting allowances was involved with purchases that averaged $112 million, a figure that is roughly 16 times higher than the first group's purchases. According to the qualitative responses they provided, the recipients of slotting allowances received these fees from a large variety of firms ranging from Fortune 100 consumer products companies, to relatively obscure regional manufacturers.

We also estimated the magnitude of slotting allowances received per store. Respondents could provide the information as dollar figures or as free cases, assuming an average sales volume commitment of fifty cases per week per store. The frequency

distribution from our sample is described in the following frequency table (the total frequency is lower than eighty-two because of missing data). Thus, 31 respondents indicated that they received a slotting allowance of less than $100, while one respondent indicated that s/he received a slotting allowance between $1000 and $5000, and so on.

< $100	$101-$500	$501-$1000	$1001-$5000	<5 cases	6-10 cases	11-15 cases	>21 cases	Don't Know/Can't Share Information
31	24	2	1	4	3	1	1	10

To assess concerns regarding non-response bias, we performed two analyses. First, we compared early and late respondents on the demographic criteria discussed above, and found no statistically significant differences between the two groups on any demographic dimensions. Second, we compared the data on dollar value of purchases in our overall sample and that of the population from which we drew. That analysis suggests that our respondents were at the high end of the spectrum. While the average store in a chain that comprises more than two hundred one stores (the category with the highest per-store sales volume) had an annual sales volume of $10.5 million, our respondents were, on average involved with purchases of over $78.6 million. Since we do not have information on the distribution of sales volumes of stores in the population, and since our measure is a measure of the respondent's involvement in purchases (which may include multiple stores) we do not interpret this difference further. However, we do caution that our results may not generalize to the population of retail stores nationwide.

Measures

We provide information on our scale items and their inter-item reliability values in the Appendix. A correlation matrix and the output of a principal components based exploratory factor analysis are provided in Tables 2 and 3 respectively. To assess discriminant validity, convergent validity and unidimensionality, we examined the correlation matrix and factor loadings. The correlation matrix indicates that, except for one item, all items correlated better with items designed to measure the same construct. The one exception was the second indicator of COST (COST2). However, the factor analysis reveals that this item loads highly on the COST factor. All other scale items load as desired. Further, the reliability values of all our multi-item scales (see Appendix) were greater than the .60 cut-off level prescribed for exploratory research (Nunnally 1967).

Insert Tables 2 and 3 about here

Dependent Variable

Our principal dependent variable, the slotting allowance charged (SAAMT), was measured with a three-item scale that compared the fees received for this product to fees received for other products, from other manufacturers, and by other retailers. The observed reliability for this 3-item scale (Cronbach's $\alpha = .77$) is acceptable.

Independent Variables

Our first construct of interest was the informational advantage of the manufacturer relative to the retailer (MANINFOR), for which we used a six-item scale. The reliability of this scale (Cronbach's $\alpha = .85$) is acceptable. To measure the retailer's costs (COST),

we used three items to capture both direct costs of shelving new products as well as the opportunity costs of shelf space. Again, the reliability of this scale (Cronbach's $\alpha = .72$) is acceptable. Finally, the wholesale price (WP) was a single-item scale.

Classification Variable

Recall that the retailer power argument (H4) suggested that when manufacturers were less certain about the success of a new product than retailers, and when the outcome was in fact likely to be favorable, the tendency to charge slotting fees would be higher. To distinguish between new products about which retailers had relatively little *ex ante* uncertainty versus those about which they had considerable *ex ante* uncertainty, we developed a three-item scale (PFAIL). These three items spoke to the vendor's ability, the retailer's market research information, and the retailer's estimate of the potential success of the new product. The observed reliability (Cronbach's $\alpha = .62$) is deemed acceptable (Nunnally 1967). A median split on this data allowed us to perform a focussed test on the hypothesis that addressed only those new products that were likely to be successful.

Tests of Hypotheses

To assess support for the hypotheses, we estimated several multiple regression models. Variables in these models were the composite measures that were generated by computing the average value of the purified scale items.

According to H1-H3, three key factors hypothesized to explain variations in slotting allowances were: a) the manufacturer's private information about the likely success of the product (MANINFOR), based on H1, b) the retailer's costs (COST), based on H2, and c) the wholesale price (WP), based on H3. (The interaction hypothesis predicted in H4 was

estimated using a different approach, which we will describe below). These hypotheses were tested simultaneously through an estimation of the following equation:

$$SAAMT = \beta_0 + \beta_1(MANINFOR) + \beta_2(COST) + \beta_3(WP) \quad (1)$$

In addition, to test H4, we performed a median split on the data on the PFAIL construct, since it was hypothesized that the effect of MANINFOR on SAAMT would only be observed when the new product was likely to be successful[9]. (When the product is not expected to be successful, slotting allowances are not expected to vary). Then, we estimated the following equation on both sub-samples:

$$SAAMT = \beta_0 + \beta_1(MANINFOR) \quad (2)$$

For equation (1) we examined the data for outliers, as well as influential data points, and evaluated the model for multicollinearity[10]. It was not necessary to exclude any data based on this analysis; further the multicollinearity diagnostics reveal no source for concern (Table 4). The highest variance inflation factor (VIF_{max}) is very low, while the smallest eigen value (λ_{min}) is quite large, and the condition number (ϕ) which is the ratio of the largest to the smallest eigen values, is relatively low (Meyers 1986). The results of the estimation of the regression models are reported in Table 4.

Insert Table 4 about here

The results of the first model that tests H1-H3 are striking. The coefficient for MANINFOR is significant but in the direction *opposite* to that predicted. This suggests that there is no support for the signaling argument that higher slotting allowances will be observed when manufacturers have more information than retailers do about the potential

success of the new product. In fact, the evidence suggests precisely the opposite effect -- enhanced vendor information results in significantly lower slotting allowances. Further, and again contrary to extant theory, COST is *negatively* related to slotting allowances. The sign of this coefficient is puzzling, and suggests that, contrary to H2, when retailer costs are high, slotting allowances drop. One possibility is that more efficient retailers tend to have lower costs, and are also more savvy. It is these savvier retailers who are able to extract higher slotting allowances. Finally, the coefficient for WP is not significant suggesting that slotting allowances and wholesale prices are not systematically related, contrary to the "anti-competitive" argument that slotting allowances will facilitate the charging of higher wholesale prices, as well as the signaling argument that slotting allowances may be recovered through higher wholesale prices[11]. This finding is consistent with Messinger and Chu (1994), who suggest that wholesale prices play a role in placing existing products on retailers' shelves, but need not supplant slotting allowances as signals of unobservable demand for new products.

Examining the coefficients for models 2 and 3 explains the lack of support for H1. Clearly, support for the rival hypothesis H4 is significant and suggests that when retailers are faced with a product that they expect will be successful, and they recognize that the manufacturer's superior market research also reveals the likely success of the new product to them, slotting allowances drop significantly. Conversely, when retailers are faced with a product that they expect will be successful, and they recognize that the manufacturer's inferior market research places the manufacturer at an informational disadvantage, they extract significantly higher slotting allowances. When the product is not expected to be successful (i.e., PFAIL = High), there is no significant relationship

between slotting allowances and the retailers informational advantage, suggesting that when retailers expect the product to fail their tendency to charge slotting allowances exhibits no variance.

DISCUSSION

Summary

The trade press is rife with anecdotal evidence on the prevalence and variation in slotting allowances (Boehning 1996). We report on the first ever systematic primary data collection exercise on this phenomenon, which is of pragmatic as well as theoretical significance. The pragmatic significance of the phenomenon is borne out by the sheer magnitude of the monetary expenditure associated with slotting allowances; estimates range from 4.2% of trade promotion expenditures to 30-55% of trade promotion expenditures (see Sullivan 1997, footnote 2). The theoretical significance of the issue is apparent from an examination of the various seemingly conflicting explanations for why slotting allowances have emerged, and what causes them to vary from one setting to the next (cf. Shaeffer 1991; Chu 1992; Lariviere and Padmanabhan 1997; Sullivan 1997).

Our results provide powerful and unambiguous support for the claim that slotting allowances are extracted by well-informed retailers from relatively less informed manufacturers. At first blush, this finding is clearly at odds with the signaling argument according to which *well informed manufacturers* will attempt to credibly reveal their private information about high unobservable demand by posting a slotting allowance as a bond (cf. Wernerfelt 1988; Ippolito 1990). Further, the "anti-competitive" claim that slotting allowances are a mechanism to *raise* wholesale prices so as to reduce retail price competition also is not supported[12]. Conversely, there seems to be some merit to the

claim that well-informed manufacturers are excused from having to pay slotting allowances. Finally, a surprising finding is that retailers' costs are *negatively* related to the tendency to charge slotting allowances.

Implications

Theoretical Implications

Based on this data, it is tempting to dismiss the signaling argument in favor of the retailer power argument, for the emergence and continued existence of slotting allowances. However, such a conclusion would be premature. In fact, it may be possible to interpret our findings from an information asymmetry perspective. Specifically, when manufacturers believe in the success of their new product, they may use slotting allowances as a signal of potential success *instead of* good marketing research data. In other words, well-informed manufacturers can signal based on the perceived quality of their market research information, while relatively ill informed manufacturers could signal with slotting allowances. However, this *post hoc* argument is noticeably different from the prevailing prediction that well-informed manufacturers will signal the quality of their information *with* a slotting allowance. Another information asymmetry based interpretation of our results is that when the retailer has more information (due to superior market research) about the likely success of the new product than the manufacturer, and both parties are aware of this information asymmetry, the information asymmetry favors the retailer. Consistent with other information asymmetry models, the party with the informational advantage is able to capitalize on resulting price distortions.

The significant negative relationship between slotting allowances and retailer's costs is, as we noted earlier, surprising. The SAAMT scale contains two items that compare

fees within the same store (thus not capturing inter-store variation). We reasoned that comparing cost variations and slotting allowance variations between stores may reveal an empirical regularity worthy of further scrutiny, and so examined the correlation between SA1 (an item that compared slotting allowances across retailers) and COST, but found that correlation to not be significant. Clearly, while our speculation that stores with lower costs may also be more powerful and may thus be able to extract slotting allowances from less powerful vendors is one reasonable hypothesis, other plausible hypotheses need to be developed and tested, perhaps using objective cost data rather than perceptual measures.

Managerial Implications

There are several implications for practitioners. *First*, retailers do charge slotting allowances (71% of our sample) as the default option when asked to stock a new product. Manufacturers can, however, reduce the tendency to charge the fee by coming armed with a product that is likely to be successful, and coming armed with convincing market research data that demonstrates their superiority over the retailer on this dimension. From our analysis, retailers seemingly reward manufacturers with credible market research data by reducing their slotting allowance demands.

Second, manufacturers can elect to refuse to pay a slotting allowance if they are willing to suffer the consequences of more limited distribution. Smaller chains, that comprised nearly 30% of our sample, do not receive slotting allowances.

Third, retailers need to be cognizant of the drivers of slotting allowances. If their costs are systematically related to their ability to charge slotting allowances, then reducing costs may be a mechanism that generates other efficiencies that result in an

increased ability to charge slotting allowances. *Fourth*, the absence of a relationship between slotting allowances and wholesale prices would merit some scrutiny. If retailers' perceptions are inconsistent with practice (i.e., the theory is correct, and wholesale prices are indeed higher when slotting allowances are charged, but, retailer perceptions of wholesale prices are biased downward), then slotting allowances may indeed be raising wholesale prices, a possibility that individual retailer's may wish to examine.

Finally, from a public policy perspective, given the prevalence of slotting allowances, and variance in the degree to which these are charged, regulators may wish to consider the efficiency, power and other reasons for the emergence of the phenomenon. Additionally, both manufacturers and retailers may wish to consider the legal ramifications of the practice.

Limitations and Future Research

Limitations

Much like other survey research that focuses on perceptual measures, our research is subject to several limitations. Conceptually, rigorous tests of signaling predictions are difficult even in experimental settings (cf. Boulding and Kirmani 1993; Rao, Qu and Ruekert 1999). The need to specify the precise circumstances under which separating equilibria will be observed make survey based tests of signaling predictions particularly difficult. Therefore, the observation that variations in slotting allowances are not easily explained by information asymmetry does not necessarily mean that slotting allowances can not be used to signal. Our observation that slotting allowances are apparently not used to signal is a descriptive finding; the normative claim that slotting allowances can be

used to signal may nevertheless be true. Future research that focuses on manufacturers' decision to use a slotting allowance as a signal will shed more light on whether slotting allowances can signal.

Our response rate is relatively low. However, given the sensitive nature of the data that we were collecting, this was to be expected. The low response rate restricts the generalizability of our findings, but is not inconsistent with recent survey based tests of information asymmetry predictions in a channels setting (e.g., Mishra et. al. 1998).

Third, our models have relatively low explanatory power based on fit statistics (i.e., the R^2 and R^2_{adj} are low), though the low PRESS statistic values are encouraging (Meyers 1986). However, given our interest in the relationships between particular theoretically defensible variables, our focus was on the significance of the coefficients rather than the total variance explained. Consequently, while a complete explanation of variations in slotting allowances will likely require the inclusion of other factors, the particular empirical regularities we observe are theoretically interesting.

Future Research

In addition to the adverse selection problem associated with the likely success of the new product, the retailer is faced with another complexity. "Retailers must decide whether a new product has enough support behind it to create consumer demand" (Mendelson 1996). In other words, the success or failure of the new product is often contingent upon post-launch actions that the manufacturer needs to undertake, such as advertising, coupon drops, and other forms of in-store support. If the manufacturer does not undertake these actions, the retailer may suffer adverse economic consequences.

In the literature, solutions to such moral hazard or post-contractual hidden action problems emphasize incentives (Klein and Leffler 1981). For instance, it has been demonstrated that price premiums (a price over marginal cost) coupled with repeat purchase provides sellers an incentive to not debase quality (Klein and Leffler 1981; Rao and Bergen 1992; Rao and Monroe 1996). Similarly, manufacturers can offer retailers exclusive territories, which increases retailer profits and thus motivates them to provide desired services (Klein and Murphy 1988). In our setting, it is the *retailer* that may need to provide manufacturers an incentive (analogous to a price premium) to assure that the manufacturer expends adequate post-launch effort (Pelton, Strutton and Lumpkin 1997). One such mechanism is the offer of a relatively high wholesale price. By providing manufacturers "super-normal" margins (over a repeated number of purchases) retailers can motivate manufacturers to support the new product. Another option is the offer of exclusive dealing, an option that is not observed in the grocery industry[13].

Notice that the moral hazard problem is resolved through a subtly different mechanism than the adverse selection problem. By emphasizing incentives in a repeated game, one party is able to motivate the other to remain honest. In contrast, signals such as slotting allowances provide information about one party's unalterable (i.e., exogenously endowed) type[14]. Simply providing a higher than normal wholesale price is sufficient to resolve the moral hazard problem as long as the super-normal margins are provided repeatedly. In principle, therefore, slotting allowances should not play a role in resolving moral hazard problems.

This role of wholesale prices (and whether the incentives offered through prices depend on the slotting allowance extracted) in a new product launch is a topic worthy of

future empirical scrutiny. For instance, in a different context, both Rao and Bergen (1992) and Montgomery and Wernerfelt (1992) independently concluded that reputable (or umbrella branded) manufacturers tended to receive lower price premiums because buyers expected them to be more trustworthy than reputation-less (or non-umbrella branded) suppliers. Therefore, to the extent that post-launch commitments are unenforceable, retailers may need to use high wholesale prices as an incentive to ensure that manufacturers fulfill their post-launch obligations. In particular, it would be interesting to determine whether manufacturers with low reputations are paid higher wholesale prices because less trustworthy suppliers may receive higher prices.

Conclusion

New product launches are hazardous. Some estimates place failure rates in the grocery industry to be as high as 80% (Wolfsenberger 1991). This failure rate coupled with the observation that the number of new product introductions increased about five-fold between 1978 and 1987, while the amount of available space barely doubled (Sullivan, 1997), has forced retailers to exercise great circumspection in selecting which new products to stock, since they are unable to tell *a priori* which new product is likely to succeed. This circumspection is a source of considerable tension between retailers and manufacturers in the food industry, and therefore represents a nice setting in which to study the mechanisms that emerge to resolve the information asymmetry about future demand for new products. Our research sheds some light on the factors that influence the charging of slotting allowances and the mechanisms that are used to reduce *ex ante* governance problems.

ENDNOTES

1. The choice of a slotting allowance over other types of signals (such as advertising, or a generous return policy, which is the equivalent of a performance guarantee) is driven by two factors. *First*, offering a generous return policy may result in the retailer not exerting the effort necessary for the success of the new product, a type of moral hazard problem (Chu 1992). Consequently, even though it may be an inexpensive signal (Kirmani and Rao, 2000), manufacturers prefer not to use it. *Second*, a slotting allowance provides a direct economic benefit to the retailer, therefore retailers prefer that manufacturers pay slotting fees rather than engage in excessive advertising.

2. Technically, low demand firms will not mimic this signal only if the associated cost can not be recovered through first period margins (see Kirmani and Rao 2000 for a non-technical explanation of the requirements for a signal to work). If the first period margin compensates for the cost of the slotting allowance, then low demand manufacturers will willingly pay the slotting fee and suffer the downstream consequences of no repeat sales. Consequently, the willingness to pay a slotting allowance generates a pooling equilibrium, and slotting allowances fail to signal. In survey research, it is difficult to assess whether the various assumptions of signaling models do indeed hold. We assume these assumptions are valid, because otherwise, slotting allowances (to the extent they are signals) should not exist.

3. Lariviere and Padmanabhan's (1997) model also suggests that slotting allowances and wholesale prices may go hand in hand.

4. This argument is at odds with the small manufacturers' claim that slotting allowances were invented by large manufacturers as an entry deterrent.

5. Additionally, slotting allowances may be illegal. Retailers may be in violation of the Robinson-Patman Act for accepting fees that are not available to all retailers. Further, large manufacturers may be guilty of predatory promotion, since they could hypothetically take control of an "essential facility" by paying the fee (see Cannon and Bloom 1991). This second argument, however, is contrary to the charge that large manufacturers frequently do not pay the fee (see footnote 9, pp. 462-3 in Sullivan (1977)).

6. In support of the signaling argument, one respondent stated that the willingness to pay a slotting allowance "…separated the men from the boys".

7. Reverse coding of MANINFOR defines the retailer's informational advantage.

8. In the interest of brevity, we do not provide details of our analysis of pretest data. The psychometric properties of our scales can be evaluated from our Phase III survey.

9. We chose not to run a model with an interaction term (PFAIL*INFOR) because of obvious multicollinearity concerns. Further, a run of the model in eq. (1) without the MANINFOR term (i.e., $SAAMT = \beta_0 + \beta_1(COST) + \beta_2(WP)$) yields the same substantive results.

10. The only response that arrived after the cut-off date was found to be an outlier (based on hat diagonal (>.11) and studentized residual (>2.11) values) and was therefore not included in the analysis.

11. Several other factors that did not have an impact on slotting allowances included the length of the relationship between retailer and manufacturer, whether the new product was a brand extension, the competition in the retailer's or manufacturer's market, and the dependence of a one party on the other.

12. In the interest of brevity, and because pretest interviews suggested that retailers would be unwilling and unable to provide accurate pricing strategy information, we did not collect data on retail pricing policies.

13. We are indebted to George John for this observation.

14. This distinction between the two types of problems and their solutions has received considerable scrutiny in the Economics literature. The interested reader is referred to Kreps (1990) for a lucid exposition.

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TABLE 1

Demographic Information

Item	Receive Slotting Allowances	Don't Receive Slotting Allowances
N	82	34
Log (Dollar value of purchases)*	16.41 (2.00)**	14.84 (1.39)
Log (Years in Purchasing)	2.51 (0.87)	2.91 (0.61)
Age Category	2.83 (0.80)	3.11 (0.83)
Log (Tenure with current employer)	2.44 (1.00)	2.64 (0.89)
Level of Management	4.27*** (0.79)	4.49 (0.85)
Type of Organization	1.40**** (0.49)	1.32 (0.48)

Significant at $p < .05$.

** Figures in parentheses are standard deviations.

*** 4 = "Senior Management" and 5 = "Top Management".

**** 1 = "Large National Chain" and 2 = "Regional Chain".

Table 2

Correlation Matrix

	SA1	SA2	SA3	MANINFOR1*	MANINFOR2*	MANINFOR3*	MANINFOR4*	MANINFOR5	MANINFOR6	COST1	COST2	COST3	PFAIL1*	PFAIL2*
SA2	*0.46*													
SA3	*0.53*	*0.62*												
MANINFOR1	0.08	0.11	*0.24*											
MANINFOR2	0.12	0.14	*0.25*	*0.53*										
MANINFOR3	*0.29*	0.12	0.06	*0.34*	*0.46*									
MANINFOR4	0.11	0.07	0.09	*0.36*	*0.59*	*0.54*								
MANINFOR5	0.19	0.11	0.09	*0.37*	*0.47*	*0.63*	*0.50*							
MANINFOR6	0.09	0.04	0.04	*0.43*	*0.44*	*0.48*	*0.33*	*0.63*						
COST1	0.07	0.13	0.10	0.06	-0.10	-0.08	-0.15	-0.03	0.05					
COST2	0.19	*0.31*	*0.39*	0.19	0.18	-0.10	0.00	0.08	0.02	*0.28*				
COST3	0.07	0.22	0.17	0.15	-0.05	-0.16	-0.04	0.01	0.08	0.40	*0.68*			
PFAIL1	-0.00	0.09	0.06	-0.07	-0.03	0.18	0.11	-0.03	-0.08	-0.19	0.03	0.07		
PFAIL2	0.02	0.04	-0.15	*-0.24*	*-0.24*	0.03	-0.05	-0.15	-0.13	-0.14	-0.08	0.04	*0.34*	
PFAIL3	-0.01	-0.12	-0.10	*-0.35*	*-0.25*	0.01	-0.17	-0.10	-0.13	-0.19	0.07	0.12	*0.30*	*0.46*

NOTE: Column and row labels refer to scale items. Please refer to the Appendix for the specific items.

[a] Italics indicate correlation significant at $p < .05$

* Reverse coded items.

TABLE 3

Factor Pattern

Item	MANINFOR	COST	PFAIL	SAAMT
SA1	.27	.21	.06	***.65***
SA2	.18	.37	.04	***.60***
SA3	.23	.40	-.09	***.50***
MANINFOR1	***.57***	.35	-.37	-.14
MANINFOR2	***.78***	.04	-.07	-.01
MANINFOR3	***.73***	-.21	.35	.22
MANINFOR4	***.71***	-.10	.17	-.24
MANINFOR5	***.79***	.05	.03	.04
MANINFOR6	***.68***	.11	-.10	-.01
COST1	-.28	***.59***	-.24	.31
COST2	.10	***.87***	.12	-.07
COST3	-.10	***.88***	.19	-.27
PFAIL1	.12	-.00	***.65***	.15
PFAIL2	-.21	-.01	***.74***	.12
PFAIL3	-.17	-.02	***.78***	-.09
% variance explained	23	16	13	9

NOTE: Column and row labels refer to scale items. Please refer to the Appendix for the specific items.

TABLE 4

Regression Analysis Results

	Model 1	Model 2	Model 3
A. Parameter Estimates			
Intercept	1.82*	2.75*	2.09*
INFOR	-0.19*	-0.07	-0.30*
COST	-0.17*	---	---
WP	0.04	---	---
B. Model Statistics			
F	4.82*	0.29	4.28*
df**	3,64	1,39	1,26
R^2	.06	.01	.14
R^2_{adj}	.05	-.01	.11
PRESS	22.33	14.80	9.20
C. Multicollinearity Diagnostics:			
VIF_{max}	1.11	---	---
λ_{min}	0.02	---	---
ϕ	189.20	---	---

* $p < .05$

** df may not total to (n-1) because of missing data.

Note: Model 1 corresponds to eq. (1), Model 2 corresponds to eq. 2 for PFAIL = High, and Model 3 corresponds to eq. 2 for PFAIL = Low.

APPENDIX

SCALE ITEMS AND RELIABILITY

Construct	Scale Items	μ[a]	σ[b]	Item-total correlation	α[c]
Slotting Amount SAAMT	Compared to the slotting fees other retailers received for this product, was the amount you received (SA1)	2.74	.74	0.52	0.77
	Compared to the slotting fees you receive from other vendors, was the amount you received from this vendor (SA2)	2.99	.77	0.59	
	As compared to slotting fees received for other products, the slotting fee received for this product is (SA3)	2.96	.72	0.68	
Information MANINFOR 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	We have better information about who buys the product than this vendor does (reverse coded). (MANINFOR1)	2.92	.99	0.53	0.85
	We have better information about whether consumers for this product will buy more at lower prices than this vendor does (reverse coded). (MANINFOR2)	3.52	1.04	0.67	
	Our marketing research is as good as our vendor's (reverse coded). (MANINFOR3)				
	We know the market for this product as well as our vendors do (reverse coded). (MANINFOR4)	2.54	1.07	0.71	
	This vendor's market research information about this product is better than ours. (MANINFOR5)	3.12	1.08	0.61	
	This vendor has more information about demand for the product than we do. (MANINFOR6)	2.15	1.03	0.66	
		2.30	1.08	0.61	

Costs COST 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	If this product fails, we stand to lose a lot of time and money because we allocated expensive shelf space to it. (COST1)	3.23	1.13	0.37	0.72
	It is expensive to restock a shelf to accommodate a new product. (COST2)	2.31	1.11	0.59	
	It is very time consuming to restock a shelf to accommodate a new product. (COST3)	2.38	1.18	0.68	
Probability of new product failure PFAIL 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	Our market research indicated that this product would do very well (reverse coded). (PFAIL1)	3.45	.86	0.35	0.62
	This product has a good chance of success, because the vendor has been very successful with past new product introductions (reverse coded). (PFAIL2)	3.89	.87	0.48	
	We are not sure that this product will be successful. (PFAIL3)	2.91	.90	0.46	
Wholesale Price WP 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	This vendor charges a wholesale price that is very high for this product.	3.38	1.01	-----	-----

[a] Item mean
[b] Standard deviation
[c] Composite inter-item reliability (Cronbach's α)